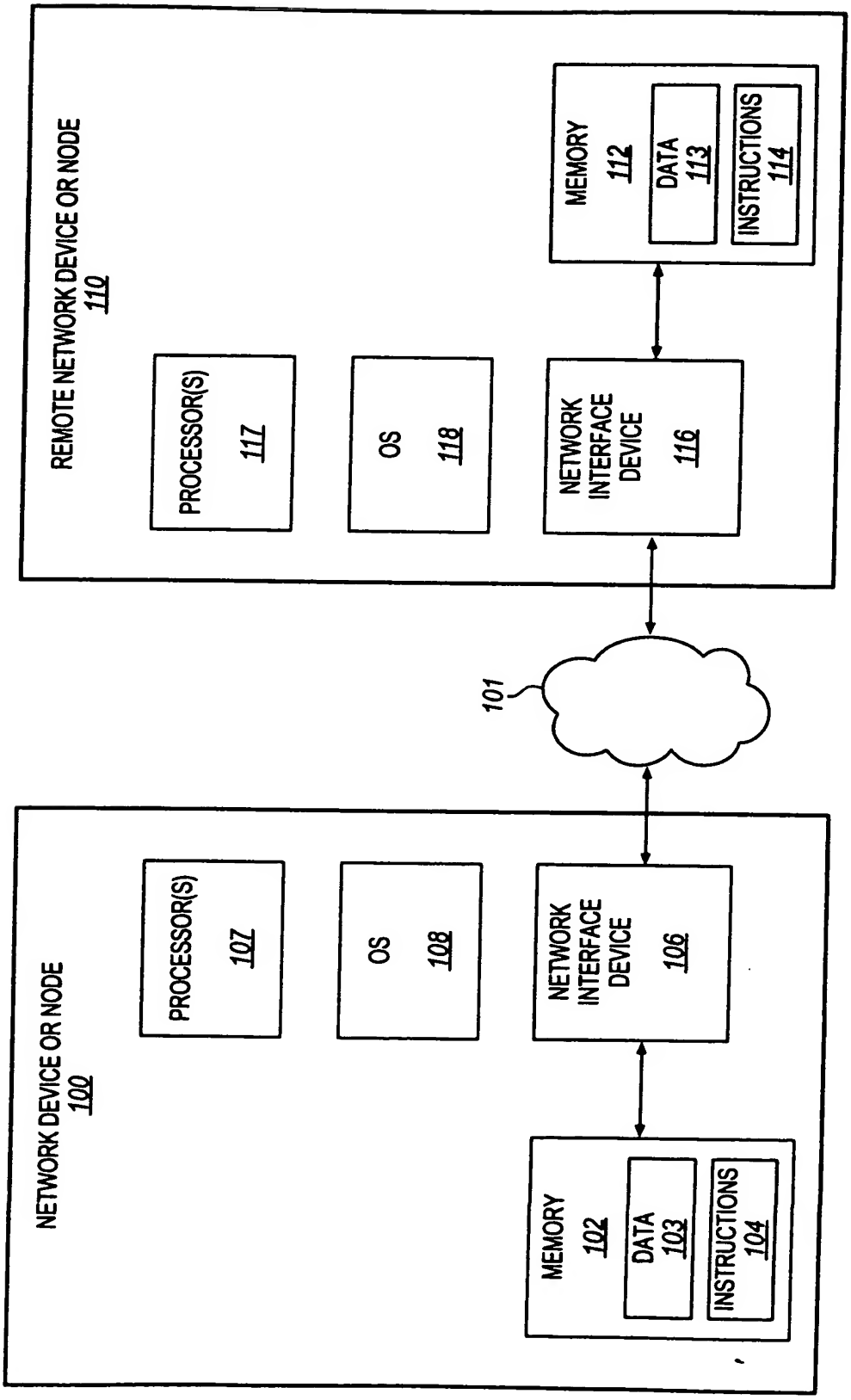

REMOTE NETWORK DEVICE OR NODE
110
PROCESSOR(S)
117
OS
118
NETWORK INTERFACE DEVICE
116
MEMORY
112
DATA
113
INSTRUCTIONS
114
101
NETWORK DEVICE OR NODE
100
PROCESSOR(S)
107
OS
108
NETWORK INTERFACE DEVICE
106
MEMORY
102
DATA
103
INSTRUCTIONS
104

FIG. 1

FIG. 2

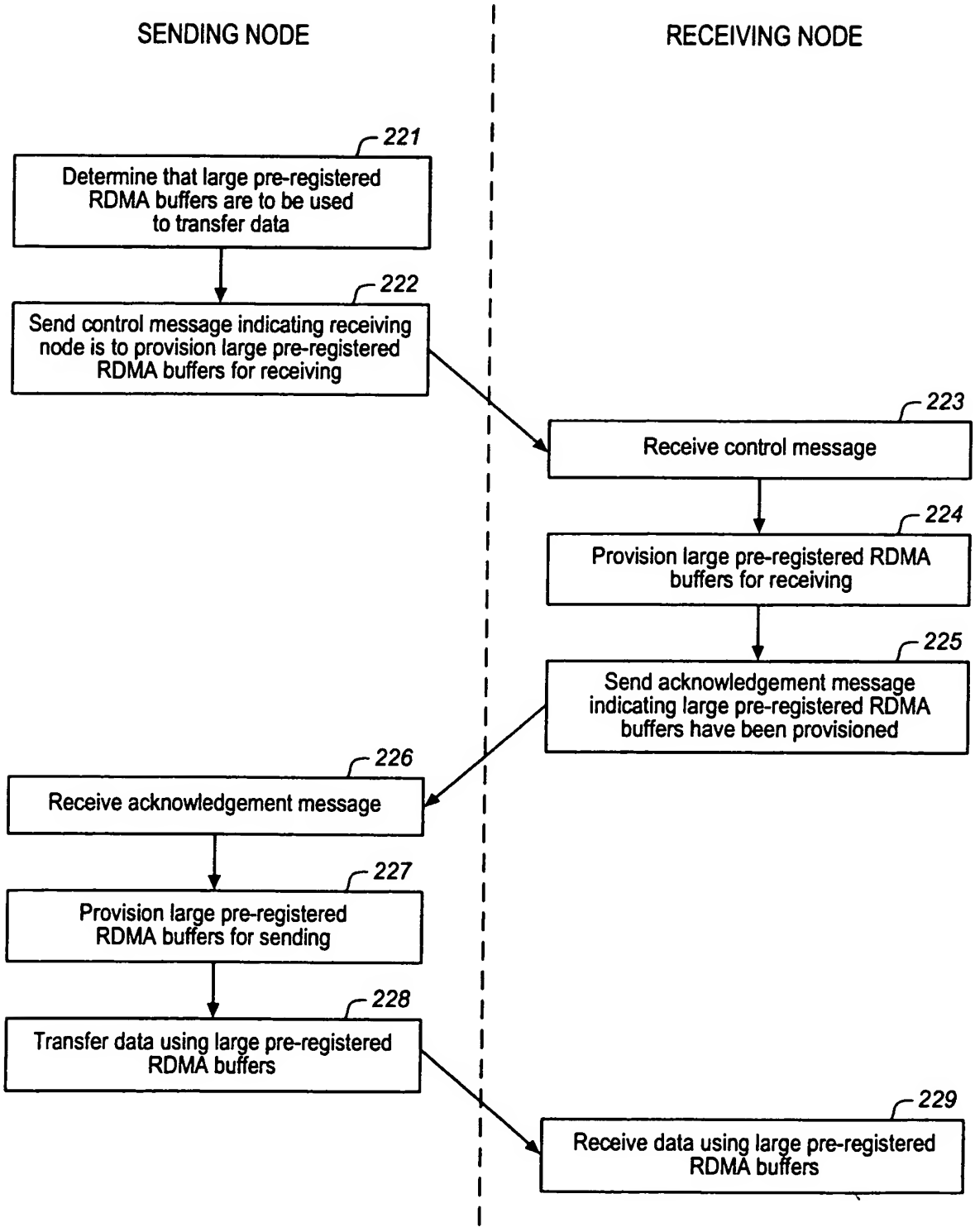

SENDING NODE
RECEIVING NODE
221
Determine that large pre-registered RDMA buffers are to be used to transfer data
222
Send control message indicating receiving node is to provision large pre-registered RDMA buffers for receiving
223
Receive control message
224
Provision large pre-registered RDMA buffers for receiving
225
Send acknowledgement message indicating large pre-registered RDMA buffers have been provisioned
226
Receive acknowledgement message
227
Provision large pre-registered RDMA buffers for sending
228
Transfer data using large pre-registered RDMA buffers
229
Receive data using large pre-registered RDMA buffers

FIG. 3

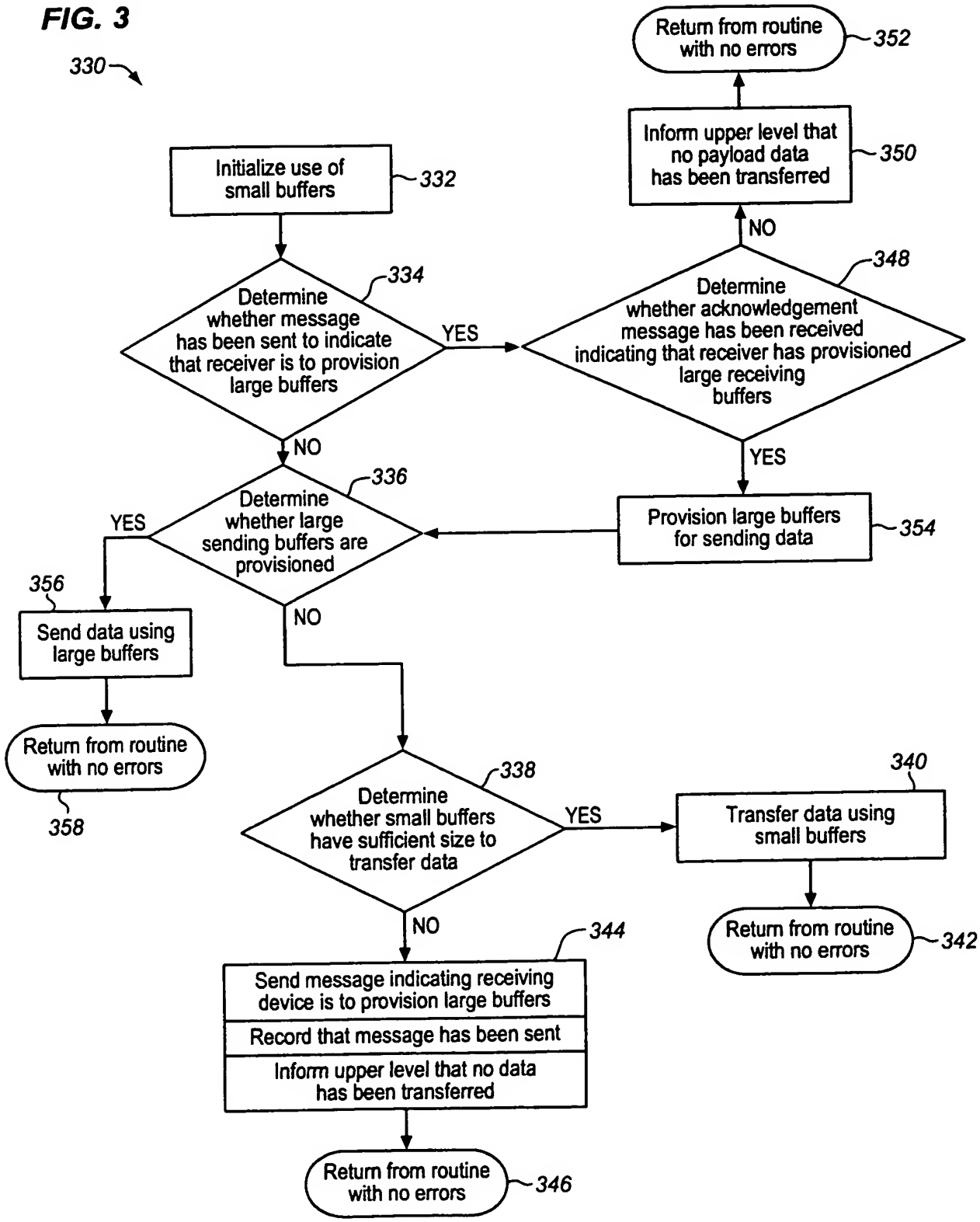

330
Initialize use of small buffers
332
Determine whether message has been sent to indicate that receiver is to provision large buffers
334
YES
NO
Determine whether large sending buffers are provisioned
336
YES
NO
356
Send data using large buffers
Return from routine with no errors
358
Determine whether small buffers have sufficient size to transfer data
338
YES
NO
340
Transfer data using small buffers
Return from routine with no errors
342
344
Send message indicating receiving device is to provision large buffers
Record that message has been sent
Inform upper level that no data has been transferred
Return from routine with no errors
346
Determine whether acknowledgement message has been received indicating that receiver has provisioned large receiving buffers
348
YES
NO
Provision large buffers for sending data
354
Inform upper level that no payload data has been transferred
350
Return from routine with no errors
352

FIG. 4

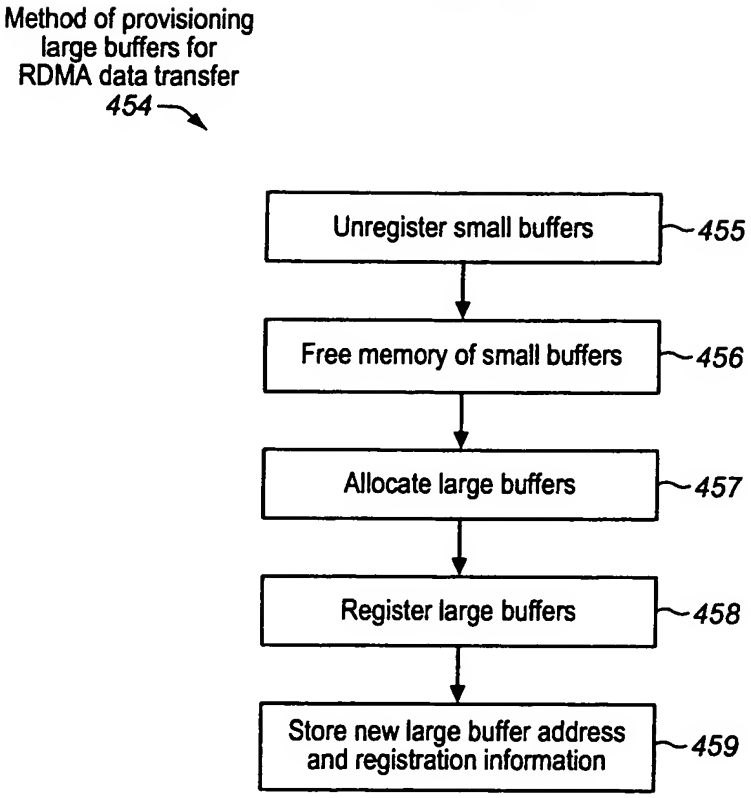

Method of provisioning large buffers for RDMA data transfer
454
Unregister small buffers
455
Free memory of small buffers
456
Allocate large buffers
457
Register large buffers
458
Store new large buffer address and registration information
459

FIG. 5

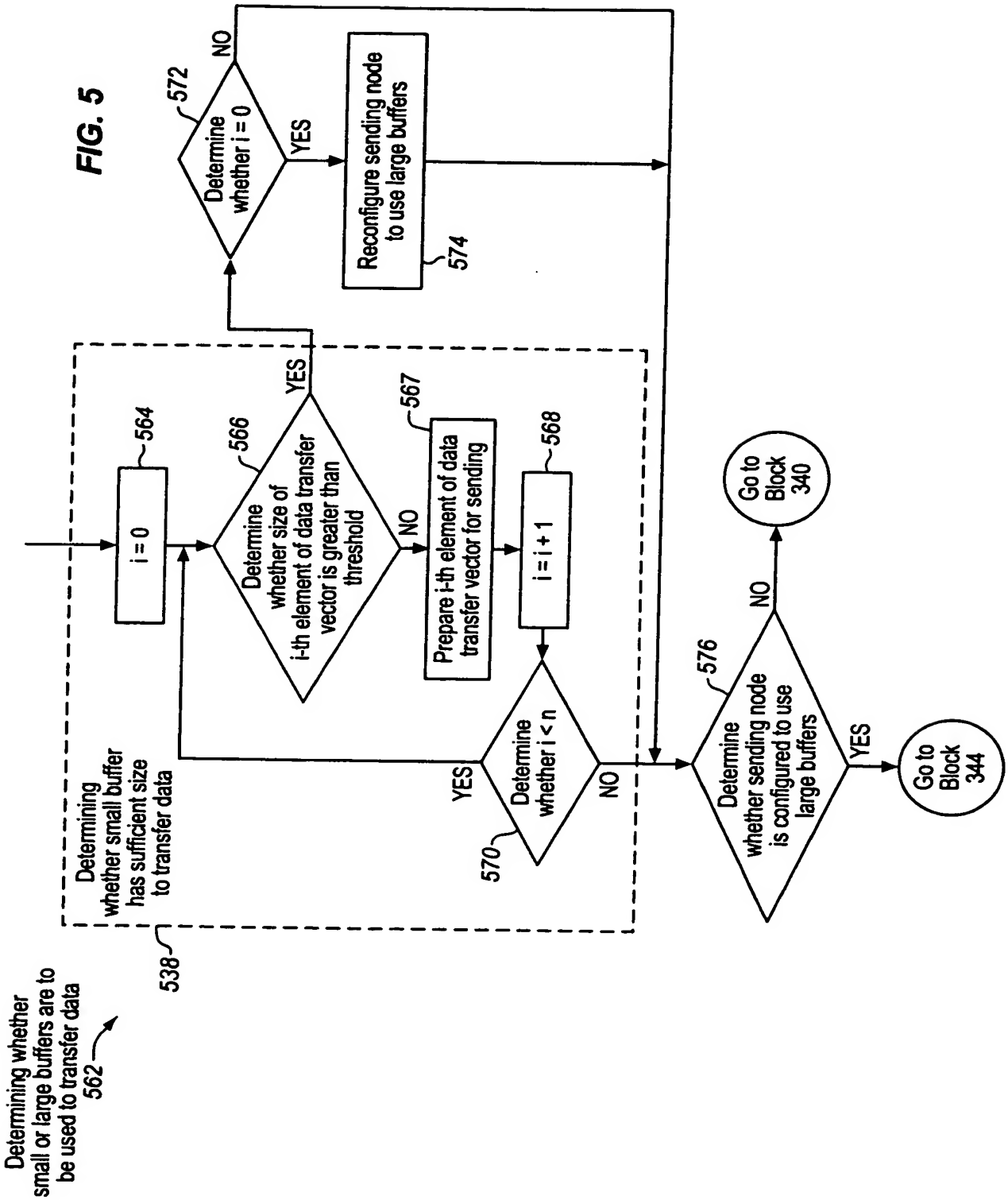
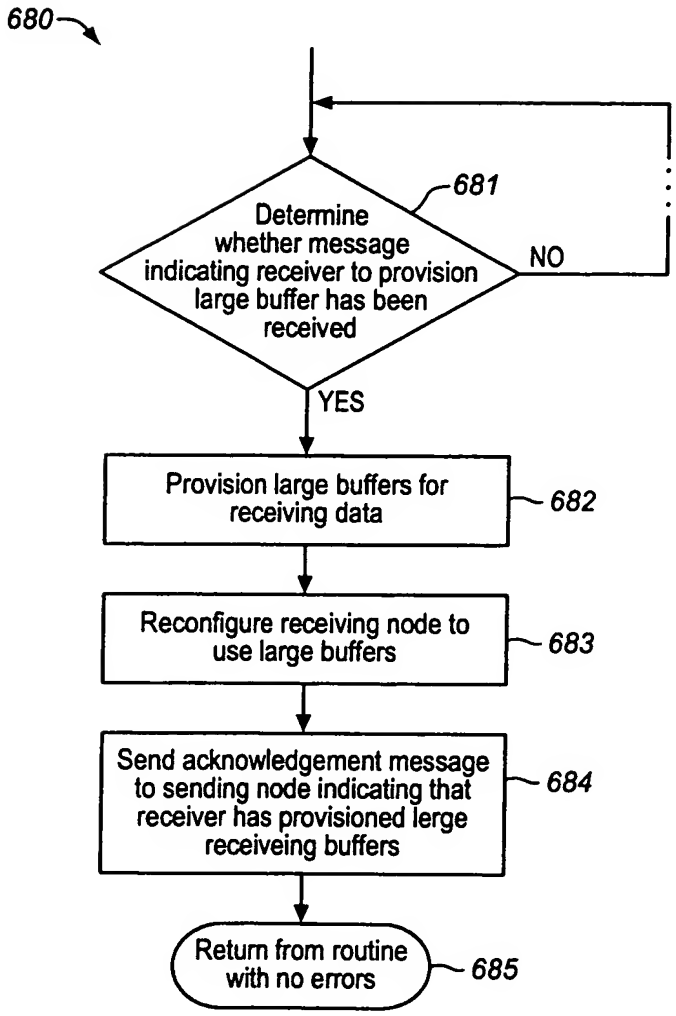

Determining whether small or large buffers are to be used to transfer data
562
538
Determining whether small buffer has sufficient size to transfer data
i = 0
564
Determine whether size of i-th element of data transfer vector is greater than threshold
566
YES
NO
Prepare i-th element of data transfer vector for sending
567
i = i + 1
568
Determine whether i < n
570
YES
NO
Determine whether i = 0
572
NO
YES
Reconfigure sending node to use large buffers
574
Determine whether sending node is configured to use large buffers
576
NO
YES
Go to Block 340
Go to Block 344

FIG. 6


680
681
Determine whether message indicating receiver to provision large buffer has been received
NO
YES
Provision large buffers for receiving data
682
Reconfigure receiving node to use large buffers
683
Send acknowledgement message to sending node indicating that receiver has provisioned lerge receiveing buffers
684
Return from routine with no errors
685

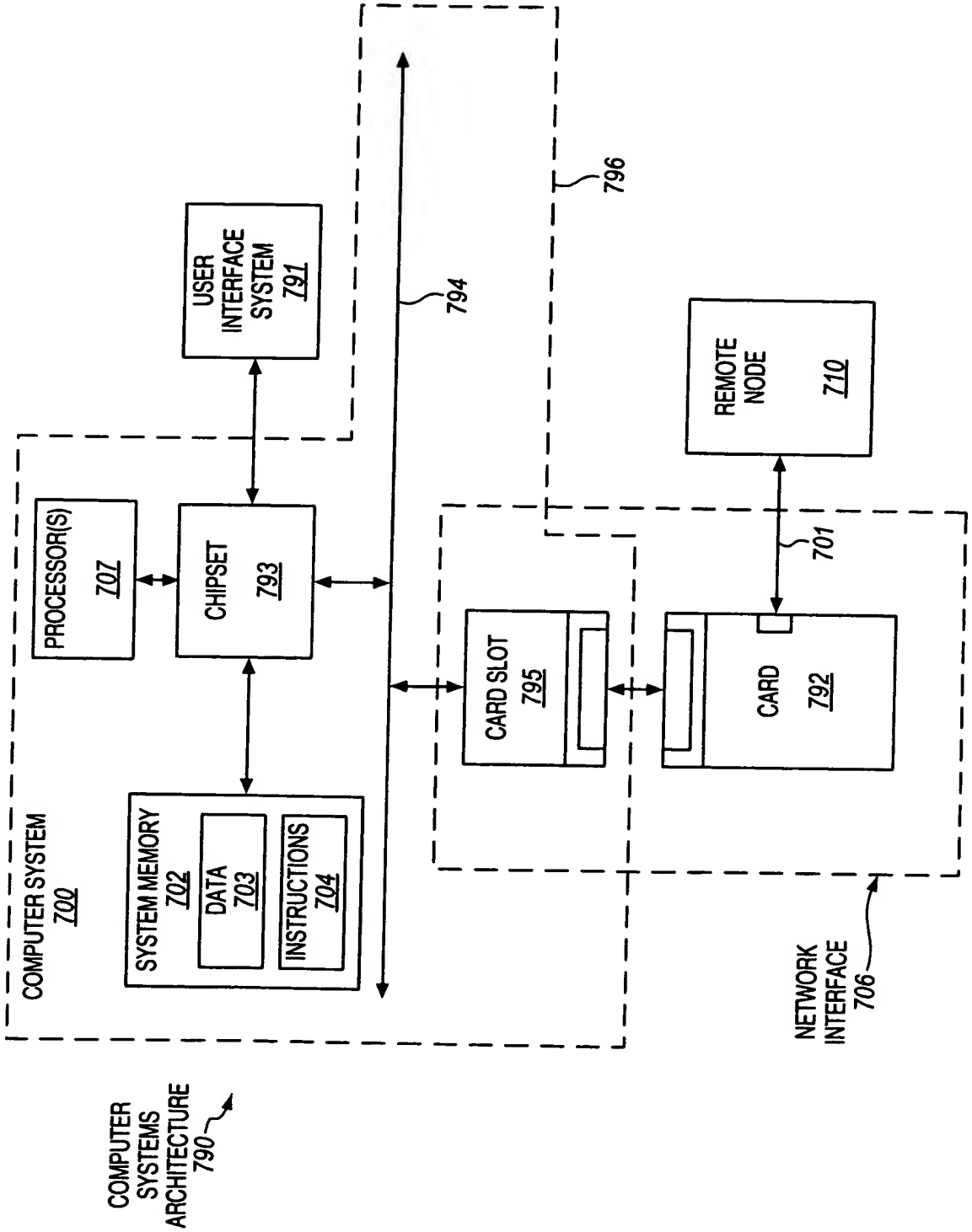

COMPUTER SYSTEMS ARCHITECTURE 790
COMPUTER SYSTEM 700
PROCESSOR(S) 707
CHIPSET 793
USER INTERFACE SYSTEM 791
SYSTEM MEMORY 702
DATA 703
INSTRUCTIONS 704
794
796
CARD SLOT 795
CARD 792
701
REMOTE NODE 710
NETWORK INTERFACE 706

FIG. 7